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TELLING MORE THAN OTHERS KNOW: SELF-KNOWLEDGE BEYOND SHARED THEORIES AND COVARIATION DETECTION

BY

(C) IGOR GAVANSKI

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
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This thesis is dedicated to my parents,

Vera and Milan Gavanski.

Abstract

People's awareness of influences on their own judgments was examined. Three questions were of primary interest: (1) Does directing people to attend to stimulus influences on their judgments increase their accuracy in assessing these influences? (2) Does this procedure change the functional relationships between stimulus variables and people's responses, so as to make them more congruent with their causal theories? (3) What are the contributions of covariation detection and shared theories to the accuracy (or inaccuracy) of causal self-reports? Forty-eight *actor* participants examined a number of target profiles, and judged how much they would like each target. *Initial attention actors* were instructed before judging the profiles to attend to how target factors influenced their liking judgments. *Delayed attention actors* received these instructions after judging the first block of profiles, and before the second. *No attention actors* did not receive these instructions at all. After judging the target profiles, actors estimated how each of several target factors had influenced their liking judgments. Each of 48 *covariation observers* examined the target profiles and the liking ratings made by one same-sex actor, and used this information to estimate how the target factors had influenced the actor's liking judgments. Sixteen *no-covariation observers* were only given a description of the actors' judgment task, and were asked to predict how the factors would influence actors' judgments. Contrary to expectations, the attention instructions actually decreased the accuracy of actors' self-reports for the first block of judgments. This effect appears to have been mediated by a reduction in the variance in actors' judgments accounted for by the target factors. Attention instructions had no effect on actors' accuracy for the second block of judgments. It was suggested that attending to influences on their judgments interfered with actors' ability to make these judgments reliably when they were unpracticed at the judgment task, but that as the processes became more automated with practice, they became less subject to interference. Overall, actors were highly accurate at assessing influences on their liking judgments, more accurate than either covariation or no-covariation observers. Actors did rely somewhat on both covariation information and shared theories in making their self-reports, and both of these sources of information

contributed at least small amounts to actors' accuracy. Nevertheless, actors retained a substantial level of accuracy even after controlling for the joint contribution of covariation detection and shared theories to their accuracy. Covariation information greatly increased the accuracy of observers' causal reports, but several analyses suggest that it made less of a contribution to the accuracy of actors' reports. These results provide strong evidence that people do possess privileged knowledge about influences on their own judgments, and that this knowledge contributes to the accuracy of their causal self-reports.

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TABLE OF CONTENTS

PAGE

Introduction 1

Review of the Literature 4

Evaluation of Recent Research 9

Rationale and Research Objectives 15

Method 18

Procedure 19

Derived Measures 22

Results 24

Discussion 36

Footnotes 44

References 47

Appendix A. Schematic Listing of Factor Levels for Target Profiles 50

Appendix B. Sample Profile Sheet 51

Appendix C. Preliminary Instructions to All Participants 52

Appendix D. Liking Rating Instructions to All Actors 53

Appendix E. Attention Instructions for First Block 54

Appendix F. Attention Instructions for Second Block 56

Appendix G. Liking Rating Scales 59

Appendix H. Subjective Influence Rating Instructions for Actors 63

Appendix I. Subjective Influence Rating Scales for Actors 65

Appendix J. Instructions to Covariation Observers 69

Appendix K. Subjective Influence Rating Scales for Covariation Observers 73

Appendix L. Instructions to No-covariation Observers 77

Appendix M. Subjective Influence Rating Scales for No-covariation Observers 79

LIST OF TABLES

Table	Description	Page
1	Mean Accuracy Correlations for Actors, Covariation Observers and No-covariation Observers	25
2	Mean Absolute Error Scores for Actors, Covariation Observers and No-covariation Observers	26
3	Mean Proportion of Variance in Actors' Liking Judgments Accounted for by the Target Factors	29

Introduction

To what extent are we aware of the factors that influence our thoughts, emotions, and behaviors? Can we directly introspect on our cognitive processes, or must we instead rely on indirect inferential reasoning in order to discover why we think, feel, and act as we do? Over the last eight years, these questions have resurfaced as a focus of research and controversy in social psychology. Interest was initially sparked by Nisbett and Wilson's (1977) provocative claim that people are frequently inaccurate in assessing the effects of stimuli on their responses, because they lack access to the cognitive processes that mediate these effects. According to Nisbett and Wilson, people's beliefs about influences on their responses are generally based on implicit theories about how particular stimuli influence particular responses, and not on direct experience with the stimuli in question. Because these theories are usually culturally supplied or derived from a connotative network that is similar across people, they tend to be equally available to members of the same culture.

As support for their argument, Nisbett and Wilson cited literature from diverse sources, including dissonance and attribution studies, Latane and Darley's (1970) work on helping behavior, Maier's (1931) work on problem solving, and research on subliminal perception, as well as a number of studies they and their colleagues performed. This research was taken as evidence of the following points: (a) Experimental participants' reports of stimulus influences on their responses are often extremely inaccurate. (b) Observers, who have not been exposed to the stimulus situations in question, are as accurate in predicting the stimuli's influence as are experimental (actor) participants. (c) There is very close correspondence between the causal reports of actors and observers. From points (a) and (b), Nisbett and Wilson inferred that people do not have introspective access to the cognitive processes mediating the influence of these stimuli, and from point (c), that the source of causal reports is the same for actors and observers, namely, shared causal theories.

Nisbett and Wilson's position has been strongly challenged on several grounds. A number of authors have argued that Nisbett and Wilson are confused about what a cognitive process is, and about what it means to have access to cognitive processes. In particular, criticism has been leveled at the claim that people have access to mental content, but not to mental processes. Smith and Miller (1978), as well as White (1980), have stated that the distinction between mental processes and mental content is unclearly formulated and arbitrary. Smith and Miller have also argued that access to mental processes does not guarantee that participants will be able to answer causal questions to experimenters' satisfaction, because there are many levels of causality and participants may simply be focussing on different levels than experimenters. Sabini and Silver (1981) go even further to state that, not only is access insufficient to ensure answers to causal questions, but mere access does not even ensure accurate descriptions of the process itself. They make a convincing case that in order to produce accurate reports, people must also have correct criteria of where to start the report and what to include in it.

Partly in response to these criticisms, Nisbett and Wilson have clarified, and to some extent revised, their position. Nisbett and Ross (1980) have acknowledged that it would be very difficult to establish that someone's causal reports about his or her cognitive processes are totally inaccurate. However, they redefine the issue so that this is no longer troublesome for them. Recall that Nisbett and Wilson's original (1977) position was that people are poor at assessing the influence of stimuli on their responses *because* they have little or no introspective access to their cognitive processes. Although Nisbett and Ross do not explicitly repudiate this position, they claim that the proper question to focus on is the following: "Is the actor aware that particular responses are functionally related to particular stimuli or situational factors...?" (p. 218). If the actor is unaware of these relationships, then, Nisbett and Ross maintain, his causal analysis is inadequate or incomplete. In fact, this revision corresponds closely with Nisbett and Wilson's (1977) *de facto* treatment of the issue, as evidenced by the following quote:

Such introspective access as may exist is not sufficient to produce

> accurate reports about the role of critical stimuli in response to questions asked a few minutes or seconds after the stimuli have been processed and a response produced. (p. 246)

Recently, Wilson and Stone (in press) have further revised Nisbett and Wilson's (1977) position by stating that people may often utilize certain types of privileged information (e.g., idiosyncratic causal theories, memories of prior thoughts and feelings), as well as shared causal theories, in making causal self-reports. They maintain, however, that such information does not generally improve the accuracy of people's self-reports beyond that of observers' guesses.

These restatements of Nisbett and Wilson's original arguments shift the focus of attention away from the conceptual issues having to do with "access to cognitive processes". Instead, the focus is now on the more testable question of whether or not people possess any privileged information that makes their causal reports about stimulus influences on their own responses more accurate than those of outside observers.

The major methodological criticism of Nisbett and Wilson's research concerns their use of between-subjects designs. Many authors (e.g., Smith & Miller, 1978; White, 1980; Kraut & Lewis, 1982) have pointed out that such designs are inadequate for testing the question of privileged awareness. The logic behind these studies appears to be as follows: If a variable has (or does not have) a significant effect between groups, and the majority of participants report that it did not (or did) influence their behavior, then they must be wrong. The fallacy in this argument is that significant mean differences between groups can be caused by a minority of participants. Thus, one cannot infer from a mean difference between groups that all or most of the participants were influenced by the manipulation. The majority may be totally accurate when they report that the variable did not (or did) influence them. Indeed, White (1980) has demonstrated how between-subjects analyses may lead to the mistaken conclusion that actors are no more accurate than observers. Clearly, in order to assess the accuracy of individual participant's causal reports, within-subjects designs are required.

Generally speaking, the methodology of recent studies is an improvement over that of Nisbett and Wilson's original work. All of the research I will cite uses within-subjects designs, and all but one of the studies have observer control conditions. The rationale behind the use of observer controls is as follows: If actors have privileged information (e.g., introspective awareness) about influences on their responses, then their estimates of these influences should be more accurate than observers' predictions. If, on the other hand, actors lack privileged information, then observers should be equally accurate. Further, to the extent that both actors and observers rely on shared causal theories in estimating stimulus influences, there should be a strong correspondence between their causal reports.

Review of the Literature

Support for lack of privileged awareness. Wilson, Laser, and Stone (1982) had actors rate their own moods and a number of predictor variables daily for five weeks, following which actors estimated the relationship between their own moods and each predictor variable. While actors were moderately accurate at this task (the mean within-subjects accuracy correlation was .42), observers, who had not rated their moods or the predictor variables, were as accurate as actors at estimating the relationships between actors' moods and the predictor variables (the mean individual observer accuracy correlation was .45). The correlation between mean actor and observer estimates was .94. Further, actors whose estimates corresponded most closely with those of the observers (according to a median split) were significantly more accurate (mean accuracy $\underline{r}$ = .50) than those whose estimates agreed least with the observers' (mean $\underline{r}$ = .32). This suggests that the more an actor relied on shared causal theories, the more accurate he or she was. This study demonstrates that the accuracy of people's self-reports is not necessarily greater in a natural setting than in the experimental setting; neither is it greater when the judgment is highly relevant to them than when the judgment is not highly relevant.

Hepburn and Locksley (1982) examined people's awareness of how much their social stereotypes influenced their judgments of target individuals. Participants rated the likelihood that various social groups possessed particular traits, and also rated the likelihood that individual targets from these social groups possessed these traits. Immediately following each target judgment, participants were asked about the impact of their stereotypes about the target's social group on the judgment. Participants were totally inaccurate at assessing how much their stereotypic beliefs actually influenced their judgments of individual targets. Although this study did not include an observer control condition, the total lack of actor accuracy precludes the possibility that participants had introspective information about their reliance on stereotypes. The two studies described here show that within-subjects designs, which provide measures of individual accuracy and give participants the opportunity to assess covariations between independent variables and their cognitive and behavioral responses, do not guarantee the accuracy of participants' causal reports.

Support for privileged awareness. A number of authors have found support for the notion that people do have privileged knowledge of influences on their actions and judgments. Smith and Miller (1978) claim that Nisbett and Bellows's (1977) study, which is generally cited as evidence for lack of privileged self-knowledge, actually provides strong evidence for privileged self-knowledge. Nisbett and Bellows manipulated five factors about a fictitious person between groups. Female actors were asked to estimate how much each of the factors had influenced a number of judgments they made about the fictitious person. Nisbett and Bellows reported that actors' estimates were generally very inaccurate, and that observers' predictions were as accurate as, and extremely similar to, those of actors. Smith and Miller reanalysed data from this study in order to examine the question of individual accuracy. They found that there were in fact significant correlations across actors between their judgments of targets on a given dimension, and their estimates of the influence of particular factors on that dimension. Nisbett and Ross (1980) have argued that it is premature to accept this as evidence of privileged awareness:

> Subjects who recognized their rating on a particular dimension to be particularly high may simply have been more likely to conclude that they had been positively influenced by *any* specified factor present than would subjects who gave low ratings on that dimension. (p. 215)

Nevertheless, Smith and Miller's findings, at the very least, stand as a caution against attempts to infer lack of self-awareness from between-subjects designs.

White (1980) had participants judge how much their liking of fictitious people was influenced by four variables (intelligence, physical appearance, selfishness, and self-confidence). In the experimental condition, participants estimated the influence of the variables after each liking judgment. In the control condition, participants estimated the influence of the variables one week after they had made the liking judgments. The rationale behind this procedure is as follows:

> It was assumed that memory for individual judgments would have decayed or been lost through interference from other judgments by that time. The design of the latter condition, essentially making actors behave as their observers, controls for the effects of personal knowledge and all factors other than knowledge of the process. (p. 111)

White found that actors were more accurate than actor-controls in assessing the influence of each of the kinds of information on their liking judgments, although this difference achieved significance only for physical appearance and selfishness information, as well as the overall comparison. The average overall accuracy correlation was .85 for actors and .70 for actor-controls.

However, White appears to have granted himself some extra degrees of freedom. He tested the significance of the differences in accuracy between actors and controls for each variable with 110 degrees of freedom. Since he used the independent means t-test and there were 14 participants per group, the correct degrees of freedom are 26. Using these degrees of freedom, the only differences to remain significant are those for selfishness and the overall comparison.

Wright and Rip (1981) report two studies which demonstrate superior accuracy of actors over observers. In the first study, high school students and

their parents ranked 32 profiled colleges according to how strongly they felt the student should apply there. The participants then estimated their own reactions to the colleges' characteristics and guessed the reactions of the other two family members. Thus, each participant served as an observer for the two other family members. This procedure ensures that observers are very well acquainted with both the task and the actors. Wright and Rip found that the mean accuracy correlation for actors (.38) was slightly but significantly higher than for observers (.32), and that accuracy correlations exceeded critical levels significantly more often for actors than for observers.

In the second study, Wright and Rip examined how aspects of an experimental situation can affect participants' accuracy by influencing their reporting motives. Some participants received instructions motivating careful retrieval and accurate reporting of their reactions and others received instructions motivating impression-management reporting. They found that participants in the accurate retrieval conditions reported reactions consistent with their actual reactions, while those in the impression management conditions reported reactions corresponding to the impression management cues. Observers were graduate students who were shown the attributes of all the stimulus colleges, as well as partial lists of the rankings two actors had made. The purpose of this was "to give observers as much or more knowledge of the final ranking by an actor subject... as that actor had when issuing the self-report" (p. 608).[1] Actors were significantly more accurate in estimating their own reactions than were observers. When observers were given less complete information about actors' ranking of the colleges, their average accuracy correlation was .32, and when they were given more complete ranking information, their accuracy correlation was .47. This is compared to average accuracy correlations of .56 and .60 for the corresponding groups of actors.

Kraut and Lewis (1982) performed a correlational study which also found evidence of actor self-awareness. In this study, actors watched videotapes of 50 interviews and evaluated the interviewees on one of three dimensions (intelligence, friendliness, or deceptiveness). Actors then estimated the influence of each of 18

interviewee characteristics (e.g., age, sex, smiling, eye contact, grooming) on their evaluations. Observers, having been given a description of how the videotapes were made and the interview sequence, estimated how the interviewee characteristics would have influenced them. The mean actors' accuracy correlation was .42, which is significant. Further, the actors' accuracy was not totally predictable from observers' causal theories. The mean actors' accuracy partial correlation, with observers' estimates held constant, was also significant (mean partial $\underline{r}$ = .15).

Further evidence for actor self-knowledge was obtained by comparing actors' accuracy in estimating influences on their own judgments with the accuracy of these same estimates in predicting influences on other actors' judgments (what Kraut and Lewis call a mismatched accuracy correlation). Kraut and Lewis state that this comparison not only controls for judges' and outside observers' use of common causal theories, but also controls for their access to the same stimulus materials and their performance of the same judgment task. Actors were significantly more accurate at judging influences on their own judgments (mean introspective accuracy $\underline{r}$ = .42) than were other actors (mean mismatched accuracy $\underline{r}$ = .36). The mean partial self-awareness correlation, holding constant the mismatched actors' judgment, was .15, which is also significant.

A recent correlational study by Gavanski and Hoffman (in press) yielded similar results. In this study, actors rated people they knew on 10 life-situation variables (e.g., job satisfaction, marital status) and also judged each person's happiness. Actors then estimated the relationships between the life-situation variables and their own happiness judgments. Actors were significantly more accurate at assessing these relationships than were either observers or mismatched actors.

The five studies described in this section demonstrate that the self-reports of actors are in fact frequently more accurate than the estimates of observers. These results suggest that under many circumstances, actors do have at least a small amount of privileged knowledge on which to base their self-reports. However, there are some problems, both with studies that have found support for privileged self-knowledge and with those that have not, which render it difficult to interpret

their results.

Evaluation of Recent Research

In this section, I will argue for the two following propositions: (1) The experimental paradigm used in studies demonstrating lack of self-knowledge does not provide a fair test of people's ability to assess the influence of stimuli on their responses, and (2) demonstrations of superior actor accuracy over observers can not be taken as evidence of privileged self-knowledge, because there are two alternative interpretations of the results.

Problems with demonstrations of no self-awareness. Some authors (e.g., Ericsson & Simon, 1980; Kraut & Lewis, 1982) have argued that what appears to be lack of privileged awareness on the part of experimental participants may in fact be memory failure. Ericsson and Simon point out that of all the studies claiming inconsistency between verbalized rules and the behaviors they were supposed to control, only one (Verplanck, 1962) used concurrent verbal reports. Further, Dulany and O'Connell (1963) have shown that Verplanck's findings are attributable to experimental artifacts. This suggests that findings of participants' inability to report influences on their mental activity and behavior may be due to the retrospective reporting procedures used in these studies.

In fact, Nisbett and Wilson (1977) did acknowledge that the research they cited was incapable of assessing people's awareness of concurrent activity, although they discounted the importance of this:

> The studies do not suffice to show that people could never be accurate about the processes involved. To do so would require ecologically meaningless but theoretically interesting procedures such as interrupting a process at the very moment it was occurring, alerting subjects to pay careful attention to their cognitive processes, coaching them in introspective procedures, and so on. (p. 246)

What Nisbett and Wilson did maintain is that people's retrospective reports of stimulus influence on their responses are not based on memory of the cognitive

activity that mediated the responses.

However, it can be argued that the experimental paradigms used to test self-knowledge do not provide a fair test of even this relatively weaker claim. Ericsson and Simon (1980) claim that the retrospective reporting procedures used in many of these studies are deficient because the delays that often occur between the task and the eliciting of self-reports make it unlikely that relevant information remains available in short-term memory. Inaccurate reports may be due to incomplete or inaccurate recall from long-term memory. Further to this criticism, Kraut and Lewis (1982) point out that memory failure is especially likely to occur in the experimental paradigms generally used to study self-awareness, "in which subjects were not forwarned that they were to report on their thoughts and therefore had no incentive to remember them" (p. 450).

Even more importantly, this procedure does not allow for the likelihood that people actively incorporate attention-control processes to monitor different aspects of their cognitive activity. Failures to report accurately on the effects of stimuli may be due to not attending to the relevant stimuli, cognitive processes, or responses, rather than an inability to attend to any of these. To provide a strong test of the hypothesis that people have no privileged awareness of stimulus influences on their responses, two preconditions are necessary. First, one must ensure that participants attempt to focus their attention on how stimuli are influencing their cognitive processes and behavior, and second, one must ensure that faulty memory or reporting strategies are not responsible for inaccurate reports.

Four of the studies discussed earlier have included procedures which seem likely to direct participants' attention to possible relationships between their responses and the variables that influenced them. White (1980), as well as Hepburn and Locksley (1983), had experimental actors rate the influences on their judgments immediately following each judgment. It seems highly likely that the knowledge that they would rate the influence of stimulus variables following each judgment would motivate participants to attend carefully to the relationship between their liking judgments and the variables.

Wright and Rip (1981), in their second experiment, asked participants to verbalize their thoughts during the judgment task. They also gave participants guidelines as to what sorts of thoughts should be verbalized:

> The general types of thoughts that should be verbalized were identified, including thoughts about what factors to consider or how to compare the colleges, thoughts while comparisons were being made or impressions formed, thoughts about what things an attribute implies, and liking or disliking reactions to an attribute. (p. 608)

Clearly, in order to verbalize their judgment processes, participants would have to attend closely to them. It is noteworthy that actors' accuracy correlations in this second experiment are for the most part substantially higher than the accuracy correlations found in the first experiment, using a very similar judgment task. Although there are a number of procedural changes that could possibly account for this difference, it may well be that the critical change was that actors in the second study attended closely to their judgment processes, whereas those in the first study did not.

Kraut and Lewis (1982) explicitly told actors, prior to the judgment task, to attend to what factors they thought were influencing their judgments. Actors were also told that they would subsequently be asked to rate the influence of a number of dimensions on their judgments. Although they were not told which dimensions would be rated, two general categories (into which virtually all the dimensions fell) were mentioned for illustration.

All three of the four studies mentioned here that included observer control conditions found actors to be more accurate in judging influences on their responses than were observers. This suggests that alerting participants to attend to relationships between their responses and the stimuli influencing them may have an important effect on the accuracy of their self-reports.

However, while procedures that alert participants to monitor their judgment processes are desirable for a strong test of Nisbett and Wilson's hypothesis, they also create a serious possible confound in these studies. This problem is illustrated

by the Wilson et al. (1982) study. Recall that in this study actors rated their mood and a number of predictor variables for five weeks, following which they judged the relationship between each of these variables and their mood. In an attempt to increase accuracy about one of the predictor variables (sleep), one group of actors was instructed to focus on and rate their sleep-mood relationship on a daily basis. The results show a dramatic increase in accuracy for this group of actors (accuracy $\underline{r}$ = .78) over those who had not received these instructions (accuracy $\underline{r}$ = .14). However, what appears to have have happened is that the relationship between sleep ratings and mood ratings in the daily-focus condition was altered to fit participants' causal theories about the relationship. There was no difference between the subjective estimates of the sleep-mood relationship between groups, but the "objective" sleep-mood relationship changed for the daily-focus actors to fit their causal theories.[2]

This study suggests the possibility that when people attend to the relationships between stimulus variables and their responses, this may result in a self-fulfilling prophecy, such that the relationships are altered to fit people's prior theories about them. This would lead to an increase in the accuracy of people's causal reports, but it would clearly be a mistake to attribute this increased accuracy to privileged self-knowledge.

Baranowski (1976; described in Ericsson & Simon, 1980) found that when participants were instructed to give verbal explanations of their judgment processes, this appeared to change the way in which they utilized the cue variables. It is tempting to speculate that the utilization of the cues changed to correspond more closely with participants' theories of how they utilized these cues, and that it was not verbalization *per se*, but attention to the cue-judgment relationships, which caused these changes. Regardless of whether or not this interpretation is correct, this study suggests that procedures such as those used in some of the self-awareness studies (e.g., concurrent verbalization) may alter the influence of stimuli on participants' responses, which in turn may influence the accuracy of their causal reports. In order to account for this possibility, studies require an

additional control condition in which participants are not instructed or otherwise alerted to monitor their cognitive activity.

Problems in interpreting actor-observer differences. The actor-observer paradigm has been used widely to study the question of self-awareness. The problem with this paradigm is that, while it is relatively well suited to discovering a lack of self-knowledge on the part of actors, it is much less well suited to demonstrating the presence of self-knowledge in actors. The reasons for this are described by Wright and Rip (1981):

> Superior accuracy in a self-report favors the private memory hypothesis only if the actor and the observer have available equally pertinent public theories and equal knowledge of the actor's stimulus environment (p. 602).

Wright and Rip point out that demonstrations of superior actor accuracy can not provide a conclusive answer to the self-awareness question, because:

> It will always be possible that the subject draws on a better public theory "of myself" or more exact knowledge of the perceived task than the observer, or that recalling overt judgments is more meaningful to the subject as a basis for a post hoc inference (p. 613).

As it is clearly impossible to control for all the advantages of actors over observers, the experimenter's task becomes one of trying to give observers as much of the information as possible about the actors and their task, that the actors themselves have.

One very significant kind of information that actors have available pertains to the covariation between their responses and the stimulus variables. Although Nisbett and Ross (1980) and others have stressed that people are extremely poor at assessing covariation, Crocker (1981) states that a review of the literature shows that Nisbett and Ross overstate their case. Further, even a very limited capacity for covariation detection would be sufficient to account for the small actor-observer differences found in most of the studies reviewed here. Indeed, Wilson and Stone (in press) have attributed findings of superior actor accuracy over observers to covariation detection on the part of actors. They claim that in research that uses

the actor-observer paradigm, differences in accuracy between actors and observers increase in direct correspondence to the ease with which the actors could assess covariations between the stimulus variables and their own responses. Thus, actors may be more accurate than observers only because observers are typically denied access to the actors' covariation information.

There is some suggestive evidence that observers can in fact utilize covariation data presented to them. Wright and Rip (1981) provided observers in their second study with partial covariation data. These observers were more accurate in their estimates of actors' reactions when presented with more complete covariation information (mean accuracy $\underline{r}$ = .47) than when presented with less complete covariation information (mean accuracy $\underline{r}$ = .32), although Wright and Rip do not report whether this difference is significant. I should hasten to add, however, that the observers in this instance were highly atypical, being graduate students (presumably trained in statistics) who were "challenged to see how closely they could estimate a subject's reactions to attributes by inspecting only the overt rankings." It seems likely that these observers would be more accurate in assessing covariations than would naive participants, but conversely, it also seems plausible that they would ignore their causal theories in attempts to attend only to covariation information, and thus be less accurate at assessing relationships that causal theories can account for, or relationships to which causal theories may direct attention.

Kraut and Lewis (1982) claim that a problem with giving observers information about the covariation between stimulus variables and an actor's judgments is that they may estimate "how stimulus characteristics influence the judge by making the [judgment] themselves or otherwise putting themselves in the perspective of the judge." Thus, to the extent that the experimental stimuli have similar influences on people, the accuracy of these observers would be enhanced.

However, this is not necessarily problematic, because if observers do make their estimates on this basis, then their estimates would predict the common variance in actors' judgments, but not the unique variance of actors whose

covariation data they have. In fact, in these circumstances, observer data would provide a very similar, but superior, comparison to one Kraut and Lewis did make. Recall that Kraut and Lewis compared the accuracy of actors' estimates in accounting for influences on their own judgments with the accuracy of these same estimates in accounting for influences on other actors' judgments. To the extent that stimuli influence actors differently, an actor with introspective ability should be more accurate at predicting influences on his own judgments than influences on other actors' judgments. Note however, that actors also have access to their own covariation data, and not to the covariation data of other actors. Observers who use introspection as the basis of their judgments are in a similar position to mismatched actors, with the exceptions that they know they are estimating influences on someone else's judgments, and have access to that person's covariation data.

Given the uncertainty about the effects of covariation information on the accuracy of causal reports, it seems highly desirable in research on self-knowledge to include a control condition in which observers are given access to actors' covariation data. Further, because we can not logically rule out the possibility that access to covariation information might actually decrease observers' accuracy by reducing their reliance on causal theories, a no-covariation observer condition should be retained.

Rationale and Research Objectives

I have argued that, for a fair test of Nisbett and Wilson's thesis that people have no introspective awareness of the influence of stimuli on their responses, it is necessary to ensure that participants actively attend to influences on their cognitive activity and behavior. Studies that have included procedures likely to bring this about find actors' reports of influences on their responses to be more accurate than observers' predictions. Unfortunately, these studies include some possible confounds. First, there is suggestive evidence that when participants attend to the relationships between particular stimuli and their responses, these relationships

may change to become more congruent with their prior causal theories. This may result in an increase in the accuracy of actors' causal reports over those of observers. In the absence of appropriate controls, any such increase in accuracy may mistakenly be attributed to privileged self-knowledge on the part of actors. Second, studies that demonstrate superior actor accuracy have not provided any way to assess the contribution of covariation detection to the accuracy of actors' reports, nor have they adequately controlled for actors' access to information about the covariations between experimental variables and their responses. Thus, access to covariation information can not logically be ruled out as the source of actors' superior accuracy.

The present research was designed with the following questions in mind: (1) Does directing participants before the fact to attend to possible influences on their judgments improve their accuracy in assessing these influences? (2) Does this procedure change the functional relationships between stimulus variables and participants' judgments, and are the relationships altered so as to make them more congruent with participants' causal theories? (3) What are the contributions of covariation detection and shared theories to the accuracy (or inaccuracy) of causal self-reports?

In the present study, actors examined a number of target profiles, and judged how much they would like each target on the basis of the information provided. Liking was selected as the criterion judgment for two reasons. First, this made the results directly comparable to those of previous research using liking judgments (Nisbett & Bellows, 1977; White, 1980). Second, liking judgments are high in both personal and ecological relevance.

Target profiles were presented in two blocks. *Initial attention actors* were instructed before judging any of the profiles to attend to how target variables influenced their liking judgments. *Delayed attention actors* received these instructions after judging the first block of target profiles, and before the second. *No attention actors* did not receive these instructions at all during the judgment task. After judging the target profiles, actors estimated how each of several target factors had

influenced their liking judgments.

There were two groups of observers. Each *covariation observer* examined the target profiles and the liking ratings made by one actor, and used this information to estimate how the actor was influenced by each target factor. *No-covariation observers* were only given a description of the actors' judgment task, and were asked to predict how the factors would influence actors' liking judgments.

If attention instructions increase the accuracy of actors' reports, initial attention actors will be more accurate than no attention actors for both blocks of judgments, and delayed attention actors will be more accurate than no attention actors for the second block of judgments. If any increases in accuracy are due solely to changes in the objective influence of the factors to correspond more closely with subjective influence reports, then there will be little or no difference between average subjective influence reports for attention and no-attention liking judgments, yet the accuracy of these reports will be greater for attention than no attention judgments. Further, there will be differences in objective influence measures between attention and no attention judgments. On the other hand, if increases in accuracy are due solely to changes in subjective influence reports to correspond more closely with the objective influence of target factors, we would expect the opposite pattern of results. There would be little or no change in objective influence measures between attention and no attention judgments, and subjective influence reports will differ between attention and no attention conditions.

If actors' accuracy is due mainly to their reliance on shared causal theories, then no-covariation observers should be as accurate as the actors, and there should be a strong correspondence between the causal reports of actors and no-covariation observers. If actors' accuracy is due mainly to their reliance on covariation detection, then covariation observers should be as accurate as the actors, and there should be a strong correspondence between the causal reports of these two groups. Differences in accuracy between covariation and no-covariation observers should reflect the extent to which access to covariation information increases or decreases the accuracy of causal reports.

Method

Participants. The sample was composed of 112 male and female introductory psychology students who participated in partial fulfillment of a course requirement. There were 48 actors (16 per condition), 48 covariation observers, and 16 no-covariation observers. Equal numbers of males and females participated in each condition. Participants were randomly assigned to conditions with the constraint that covariation data from one actor had to be available for each covariation observer.

Target profiles. Target profiles ostensibly represented the responses of 64 male university students to part of a personality questionnaire. The profiles were constructed from eight factors, each with two levels. Each factor represented one true-false item on the personality questionnaire (e.g., most of my friends are of the opposite sex; I am often bored; I am a smoker; I am more attractive than the average person my age).

The eight factors were selected from an initial pool of 42, on the basis of pretesting with a separate sample of 49 male and 49 female university undergraduates. The 42 initial factors were drawn mainly from various personality inventories, and were used to construct seven sets of 64 target profiles. Each set of target profiles comprised a full factorial combination of six two-level factors. Pretest participants were randomly assigned to work with one of the seven sets of profiles. Fourteen participants worked with each set of profiles. These participants first judged how much they would like each target on the basis of the information provided, following which they estimated how each of the six target factors had influenced their liking judgments. On the basis of this pretest, target factors were selected according to the following criteria: First, factors that were involved in significant three-way or higher interactions for more than two participants were excluded. This resulted in the rejection of eight factors. This criterion was established because the main experiment was based on a fractional factorial design, in which three-way and higher interactions are aliased with two-way interactions and main effects (Montgomery, 1984). Second, factors with the greatest variability of

influence on pretest participants' judgments were selected. This criterion was established in order to provide actors the greatest possible opportunity to demonstrate any privileged awareness they might possess, because shared theories would not account for idiosyncratic effects of the factors on the actors.

Thirty-two unique combinations of factor levels, comprising an orthogonal subset of the 256 possible combinations of eight two-level factors (see Montgomery, 1984; Raghavara, 1971), were used for the target profiles. (Appendix A contains a schematic listing of the factor levels for the 32 profiles). In addition to the eight target factors, two "dummy factors" (i.e., factors whose levels did not vary between profiles) were included in the target profiles. These dummy factors were "I believe that a university education is a valuable asset" (true), and "I have never lied in my life" (false). The dummy factors were included in order to make covariation detection somewhat more difficult by increasing the number of factors participants must attend to, and to increase the ecological realism of the judgment task (see Appendix B for sample profile sheet). Profiles were presented in two separate blocks, both of which contained the same 32 profiles in different randomized orders. These two blocks were presented in counterbalanced order.

Procedure

Participants were told that the purpose of the experiment was to determine if short personality inventories could be used to identify the kinds of people who tend to be liked or disliked by their fellow students (see Appendix C). This deception was employed to minimize the possibility that actors would guess the purpose of the study and spontaneously attempt to monitor their judgment processes.[3] Participants were fully debriefed at the end of each experimental session. In order to reduce social desirability effects, participants were informed at the beginning of the session that their responses would be anonymous.

Actors. All actors were initially presented with one block of 32 target profiles, and asked to use the information provided in each profile to judge how much they would like that target (see Appendix D). After they had completed

this task, they were given a second block of 32 profiles to judge. Actors were not informed that the profiles in the second block were identical to those in the first block. Liking judgments were made on 13-point scales ranging from "would dislike this person very much", to "would like this person very much" (see Appendix G).

At different points in the procedure, some actors were asked to attend closely to how the various factors in the target profiles influenced their liking judgments, as they made the judgments. These instruction were as follows:

> We are particularly interested in how each of the various items of information in the personality inventories affects your liking judgments. As you make your liking ratings, we would like you to pay very close attention to how people's responses to each item influence your liking of them. For some items, "true" responses may make you like people more than "false" responses. For some items, "true" responses may make you like people less than "false" responses. Finally, for some items, "true" or "false" responses may have no effect on your liking. What we would like you to do is pay special attention to how much, and in what way, each item in the personality inventories influences your liking...Please pay close attention to how each item individually is affecting your liking and try to remember this.

In the ***initial attention*** condition, actors received these instructions before judging any of the profiles. Prior to judging the second block of profiles, these actors were reminded to continue attending to influences on their liking judgments. In the ***delayed attention*** condition, actors received the attention instructions after judging the first block of target profiles, and prior to the second block. In the ***no attention*** condition, actors did not receive the attention instructions. (See Appendixes E and F for full instructions.)

After actors completed the second block of judgments, the profiles and the actors' liking ratings were removed. Actors then estimated the average influence of each target factor on their liking judgments. Actors made separate influence

estimates for each block of target judgments (in counterbalanced order). Actors were asked to indicate how, on the average, their liking of targets was influenced by whether the target had responded "true" or "false" to each item (factor). For example, for the item "I am a smoker", actors indicated whether they liked targets more who responded "true" or those who responded "false" to this item (see Appendix H). Actors' estimates were made on 13-point scales with the endpoints labelled "'false' response made me like people much more than 'true' response", and "'true' response made me like people much more than 'false' response". The midpoint of the scale was labelled "response made no difference to my liking" (see Appendix I).

Observers. There were two groups of observers. *Covariation observers* received a detailed description of the actors' task, and were given the liking ratings made by one same-sex actor (randomly selected from among those who had completed the experiment), as well as the two blocks of target profiles. The two blocks of profiles were presented in the same order as for the actor. Observers were asked to use this information to estimate how the actor was influenced by each target factor for the first block and for the second block of profiles (see Appendix J). These estimates were also made in the same order as for the actor. It was emphasized that the experimenter was interested in how the actor was influenced by the factors, not how the observers would be influenced. Observers were also informed that they were estimating influences for same-sex actors. Estimates were made on 13-point scales ranging from "'false' response made the actor like people much more than 'true' response", to "'true' response made the actor like people much more than 'false' response". The midpoint was labelled "response made no difference to the actor's liking" (see Appendix K).

No-covariation observers also received a detailed description of the actors' task, but were not given the target profiles nor any of the actors' liking ratings. They were asked to guess how much, on the average, each factor influenced same-sex actors' liking of the targets (see Appendix L). Estimates were made on 13-point scales ranging from "'false' response made actors like people much more

than 'true' response", to "'true' response made actors like people much more than 'false' response (see Appendix M).

Derived Measures

Objective influence measures. Measures of the actual influence of the target factors on each actor's liking judgments can be obtained in several ways (cf. Slovic & Lichtenstein, 1971). The measure which is conceptually closest to the subjective influence reports actors made is the difference between an actor's average liking ratings for the two levels of each factor, calculated over the target profiles. For a factor such as "I am a smoker", this measure would represent the difference between average liking ratings of smoking and non-smoking targets. Separate objective influence measures were obtained for the first block, second block, and both blocks of profiles.

Accuracy measures. Separate accuracy measures were also calculated for the first block, second block, and both blocks of target profiles. For assessing actors' accuracy over both blocks of profiles, the means of each actor's subjective influence estimates for the first and second blocks were taken as the actor's estimates for both blocks. The accuracy of actors' subjective influence estimates was measured in two ways. First, each actor's subjective influence estimates for the eight factors were correlated with the actor's objective influence measures for those factors. This will be called the actor accuracy correlation. Although this is an adequate index of the actor's accuracy over all eight factors, it does not allow one to assess the actor's accuracy for individual factors. For this reason, a second accuracy measure was calculated. This measure represents the absolute difference between the actor's standardized objective and subjective influence measures for each factor. This measure, which will be called the actor absolute error, provides an index of the actor's accuracy for each factor (the smaller the error, the greater the accuracy). The mean of each actor's eight absolute error scores represents that actor's overall accuracy. The absolute error measure has been used in previous research (Gavanski & Hoffman, in press) and has been found to be more sensitive

to variations in accuracy than the accuracy correlation.

The accuracy of covariation observers was assessed in the same ways as that of actors. Each covariation observer estimated the effects of the target factors on one actor whose covariation data he or she was given. The covariation observer accuracy correlation was the correlation between each covariation observer's subjective influence estimates and the objective influence measures for the corresponding actor. The covariation observer absolute error was the absolute difference between the observer's standardized subjective influence estimates and the corresponding actor's standardized objective influence measures.

The accuracy of no-covariation observers was assessed in a similar manner. The no-covariation observer accuracy correlation was the mean of the correlations between the actor's objective influence measures and each same-sex observer's predictions. The no-covariation observer absolute error measure was obtained by calculating the absolute difference between the actor's standardized objective influence measure for each factor and each of the standardized individual observer predictions for that factor. The mean of these absolute difference scores represents the no-covariation observers' accuracy as a group for that factor, and the mean of these means represents their accuracy over all eight factors.

Results

Tables 1 and 2 display mean accuracy correlations and absolute error scores, respectively, for actors, covariation observers, and no-covariation observers. For actors and covariation observers, separate accuracy measures were calculated over the first block, second block, and both blocks of target profiles.[4] Because no-covariation observers had no basis for making differential predictions for the two blocks of profiles, only accuracy measures over both blocks are reported for this group.

Actor accuracy. As can be seen in Table 1, actors were highly accurate at assessing influences on their own liking judgments. Overall, actors' causal reports accounted for an average of 60 percent of the variance in the actual influences on their judgments.[5] The mean actor accuracy correlations ranged from a low of .43 for initial attention actors (over the first block) to a high of .81 for no attention actors (over both blocks). All of these mean correlations significantly exceed zero, $ts(15) > 4.07$, $ps < .001$.

Surprisingly, actors who were instructed to attend to influences on their judgments were not more accurate than those who were not. Although a one-way analysis of variance on accuracy correlations for the first block of profiles yielded a significant effect, $F(2,45) = 3.22$, $p < .05$, individual comparisons indicated that initial attention actors were in fact less accurate than either of the two groups that had not received attention instructions at this point, $ts(30) > 2.04$, $ps < .05$, and that these latter two groups did not differ in accuracy. There were no reliable differences between groups in accuracy for the second block, or for both blocks of profiles.

Parallel analyses, using absolute error scores rather than accuracy correlations, yielded an equivalent pattern of results. For the first block of profiles, absolute errors were greater (indicating lower accuracy) for initial attention actors than for the other two groups, $F(2,45) = 5.23$, $p < .01$; individual-comparison $ts(30) > 2.04$, $ps < .05$. Otherwise there were no reliable differences in accuracy between groups of actors.

Table 1

Mean Accuracy Correlations for Actors, Covariation Observers, and No-covariation Observers

Group	Attention Condition		
	Initial	Delayed	No
		First Block	
Actors	.43	.66	.68
Covariation Observers	.48	.42	.58
		Second Block	
Actors	.64	.68	.75
Covariation Observers	.31	.38	.57
		Both Blocks	
Actors	.60	.73	.81
Covariation Observers	.43	.47	.71
No-covariation Observers	.16	.22	.24

Table 2

Mean Absolute Error Scores for Actors, Covariation Observers, and No-covariation Observers

Group	Attention Condition		
	Initial	Delayed	No
		First Block	
Actors	.81	.58	.54
Covariation Observers	.74	.74	.66
		Second Block	
Actors	.57	.56	.47
Covariation Observers	.85	.82	.69
		Both Blocks	
Actors	.63	.48	.43
Covariation Observers	.75	.73	.59
No-covariation Observers	.99	.94	.94

The low accuracy of initial attention actors for the first block of profiles may have been due to one of two factors. Attention instructions may have changed the way the target factors influenced these actors, or they may have changed the actors' estimates of these influences. Either of these two effects (or a combination of them) could have reduced the correspondence between actors' estimates of the factors' influences and the actual influences, with a resultant decrease in the accuracy of the initial attention actors.

Both within- and between-subjects analyses suggest that attention instructions had no effect on actors' subjective influence estimates. The within-subjects correlations between actors' estimates for the first and for the second block of profiles were uniformly high for all three groups of actors, averaging .84, .87, and .89, for initial, delayed, and no attention actors. To test if attention instructions had any consistent effect on actors' estimates between groups, the average estimates of each group were correlated with those of each of the other two groups. These correlations were also high, ranging from .70 to .85, and did not significantly differ from each other.[6] These results were obtained both with estimates for the first block of profiles and those for the second block.

To test more directly if any changes in subjective influence estimates for the two blocks of profiles were at all responsible for initial attention actors' lower accuracy for the first block, each initial attention actor's estimates for the first block were correlated with the objective influence measures for the second block, and the estimates for the second block were correlated with the objective influence measures for the first block. Both sets of estimates were equally inaccurate at predicting influences on the first block of judgments (mean $\underline{r}s$ = .43 and .40), and equally accurate at predicting influences on the second block (mean $\underline{r}s$ = .64 and .60). Thus, initial attention actors' lower accuracy for the first block of profiles was not due to any changes in their subjective influence estimates.

Several analyses suggest that the attention instructions did change the way initial attention actors were influenced by the target factors for the first block of profiles, and that this was the cause of the low accuracy of these actors' reports.

First, as can be seen in Table 3, the mean proportion of variance in liking judgments accounted for by the target factors was lowest for initial attention actors over the first block of profiles. The target factors accounted for significantly less variance in initial attention actors' judgments for the first block of profiles than for the second block, $t(15) = 2.57$, $p < .05$. There was no corresponding effect for the other two groups of actors. In addition, between-group analyses indicated that the mean R^2 for initial attention actors was significantly lower than the mean R^2 for any other group over either block, $ts(30) > 2.04$, $ps < .05$.

Second, within all groups, there were significant relationships between the proportion of variance in liking judgments accounted for by the target factors, and actor accuracy. In other words, actors whose judgments were most reliably influenced by the target factors were most accurate in assessing these influences. The correlations between accuracy correlations and multiple R^2 were .50, .53 and .49 for initial attention, delayed attention, and no attention actors, respectively (all $df = 14$, $ps < .05$). The corresponding correlations between absolute errors and R^2 were -.41 ($p < .10$), -.70, and -.59 ($ps < .05$).

This relationship between actors' accuracy and the variance in their judgments accounted for by the target factors suggests that the low accuracy of initial attention actors for the first block of profiles may have been due to the low overall influence of the factors on these actors' liking judgments. In order to test this possibility, one-way analyses of covariance, with R^2 as a covariate, were carried out on actors' accuracy scores (both accuracy correlations and absolute errors). These analyses support this interpretation of the results. Once R^2 was controlled for, there were no significant differences in accuracy between groups of actors for the first block, second block, or both blocks of profiles, $Fs(2, 45) < 1.65$, $ps > .20$.

Why would the overall variance in actors' judgments accounted for by the target factors be related to actors' accuracy? One possibility, suggested by Smith and Miller (1978) and Kraut and Lewis (1982), is that actors are more accurate at assessing strong, than weak, influences on their responses. However, this does not

Table 3

Mean Proportion of Variance in Actors' Liking Judgments Accounted for by the Target Factors

	Attention Condition		
Block	Initial	Delayed	No
First	.46	.57	.70
Second	.66	.65	.75

appear to have been the case. The mean within-subjects correlations between the absolute objective influence of each factor and the actor's absolute error score for that factor did not significantly differ from zero for any group of actors, $ps > .20$. This finding is consistent with previous research on this question (Gavanski & Hoffman, in press).

A second possible explanation for the relationship between multiple R^2 and accuracy is that low accuracy in cases where the factors accounted for little of the variance in liking judgments was due to a restricted range of influence of these factors (Gavanski & Hoffman, in press). Indeed, there was a strong relationship between multiple R^2 and the range of the factors' influences, $r(46) = .69$, $p < .001$. Further, there were significant relationships between the range of influences and both the actors' accuracy correlations ($r(46) = .44$, $p < .01$) and the actors' absolute errors ($r(46) = -.47$, $p < .001$).[7]

However, this relationship between accuracy and range could be an artifact of the relationships between both of these variables and R^2; conversely, the relationship between accuracy and R^2 could be an artifact of the relationships between both of these variables and range. In order to test which of the two variables, multiple R^2 or range, directly mediated actors' accuracy, semi-partial correlations were calculated. These correlations allow one to examine to what extent the part of R^2 that is not correlated with range predicts accuracy, and to what extent the part of range that is not correlated with R^2 predicts accuracy. These analyses suggest that R^2, and not range, mediated the accuracy of actors' self-reports. The semi-partial correlation between accuracy correlations and R^2, partialling range from R^2, significantly exceeds zero ($r(45) = .30$, $p < .05$), and that between accuracy correlations and range, partialling R^2 from range, does not ($r(45) = .11$, $p > .20$). The same pattern was obtained with corresponding semi-partial correlations between absolute error and R^2, controlling for range ($r(45) = -.37$, $p < .02$), and between absolute error and range, controlling for R^2 ($r(45) = -.09$, $p > .20$).

In sum, then, several converging analyses suggest that attention instructions reduced the overall influences of the target factors on actors' judgments, and that this in turn reduced their accuracy in assessing these influences.

Observer versus actor accuracy. If actors' accuracy stems mainly from their reliance on shared causal theories, then no-covariation observers should be as accurate as the actors. Table 1 shows that this was clearly not the case. Mean accuracy correlations for no-covariation observers were very low, ranging from .16 to .24. Although these correlations were significantly greater than zero, $ts(15) > 2.95$, $ps < .01$, they were significantly lower than the corresponding actor accuracy correlations, $ts(15) > 4.07$, $ps < .001$.[8] In addition, mean absolute errors were significantly higher for no-covariation observers than for actors, $ts(15) > 4.07$, $ps < .001$. Overall, the estimates of no-covariation observers accounted for an average of only 7.9 percent of the variance in the actual factor influences on actors.

There was, however, some correspondence between actors' and no-covariation observers' estimates of the target factors' influence. The correlations between each actor's estimates and mean no-covariation observers' estimates averaged .35, .25, and .44, for initial, delayed, and no attention actors. These mean correlations are significantly greater than zero, suggesting that actors did base their estimates partly on shared causal theories. Nevertheless, actors remained accurate even after controlling for the contribution of shared theories to their accuracy. The actor accuracy partial correlations, controlling for mean no-covariation observers' estimates, averaged .51, .71, and .76, for initial, delayed, and no attention actors, all of which are significantly greater than zero, $ts(15) > 4.07$, $ps < .001$.[9] In order to determine to what extent reliance on shared theories contributed to actors' accuracy, semi-partial accuracy correlations, partialling mean observer estimates only from actors' estimates, were calculated. These correlations permit us to examine how well the part of actors' estimates that is not related with observers' theories predicts influences on the actors' judgments. The differences between actors' zero-order and semi-partial accuracy correlations represent the extent to which shared theories contributed to their accuracy. The semi-partial accuracy correlations averaged .49,

.61, and .64 for initial, delayed, and no attention actors. These correlations are significantly lower than the actors' corresponding zero-order accuracy correlations, $ts(15) > 2.60$, $ps < .02$, although the reductions in accuracy are small. These results suggest that shared theories did contribute a small amount to the accuracy of actors' reports.

However, actors potentially have at their disposal, not only shared causal theories, but also information about covariations between the target factors and their liking judgments. If the accuracy of actors' causal reports stems mainly from covariation detection, then covariation observers should be as accurate as the actors, and more accurate than no-covariation observers. Indeed, as can be seen in Table 1, covariation observers were quite accurate at assessing influence on the actors, with mean accuracy correlations between .31 and .70. Overall, the estimates of covariation observers accounted for an average of 40 percent of the variance in actual factor influences on the actors. Analyses of both accuracy correlations and absolute errors showed that covariation observers were significantly more accurate at assessing influences for each group of actors than were no-covariation observers, $ts(15) > 2.13$, $ps < .05$, indicating that access to covariation information does indeed increase the accuracy of observers' reports.

One possible interpretation of this result is that covariation observers made their own liking judgments on the basis of the target profiles, and then used introspective information about influences on their own judgments to estimate how the actor was influenced by the target factors (cf. Kraut & Lewis, 1982). To the extent that the target factors influence people's judgments in similar ways, this strategy would enhance covariation observers' accuracy. If covariation observers indeed made their estimates on this basis, then their estimates should predict the common variance in actors' judgments, but not the unique variance of the actor whose covariation data they were given. To test this hypothesis, a comparison was made between covariation observers' accuracy at accounting for influences on actors whose covariation data they were given, and their accuracy at accounting for influences on randomly selected actors (whose covariation data they did not have).

The covariation observers were much more accurate at assessing influences for actors whose data they had (mean accuracy $\underline{r}$ = .54; mean absolute error = .69) than at assessing influences for actors whose data they did not have (mean accuracy $\underline{r}$ = .14; mean absolute error = .99), $\underline{ts}(47) > 3.50$, $\underline{p} < .001$. These latter accuracy scores do not significantly differ from those attained by no-covariation observers. These results strongly suggest that covariation observers did make their estimates on the basis of actors' covariation data, rather than on the basis of their own introspective information.

Although covariation observers were more accurate than no-covariation observers, they were not as accurate as the actors. Only initial attention actors, over the first block of profiles, did not surpass covariation observers in accuracy. Otherwise, actors in all conditions were significantly more accurate than covariation observers for the first block, second block, and both blocks of profiles, $\underline{ts}(15) > 2.13$, $\underline{ps} < .05$. These results were obtained with both accuracy correlations and absolute errors.

The correlations between yoked actors' and covariation observers' subjective influence estimates averaged .31, .42, and .57, for initial, delayed and no attention actors' data, suggesting that actors may have based their estimates at least partly on covariation information. Nevertheless, actors remained accurate at assessing influences on their judgments even after controlling for their access to covariation information. The actors' accuracy partial correlations, partialling covariation observers' estimates, averaged .37, .66, and .69, for initial, delayed and no attention actors, $\underline{ts}(15) > 2.60$, $\underline{ps} < .02$. The corresponding semi-partial correlations averaged .36, .53, and .51 for initial, delayed, and no attention actors.[10] All of these are significantly lower than the actors' zero-order accuracy correlations, $\underline{ts}(15) > 2.13$, $\underline{ps} < .05$. Thus, covariation detection probably did contribute somewhat to the accuracy of actors' self-reports, although actors attained a level of accuracy beyond that attributable to covariation detection.

It might be argued that access to covariation information caused observers to neglect their causal theories in an attempt to accurately assess covariations. Indeed,

it does appear that covariation observers relied less on shared theories in making their subjective influence estimates than did either actors or no-covariation observers. The correlations between the estimates of covariation observers and the mean estimates of no-covariation observers averaged only .17, which is significantly lower than the average correlation of .35 between actors' and no-covariation observers' estimates, $t(47) = 2.94$, $p < .01$, and significantly lower than the average no-covariation observer intercorrelation of .41, $t(62) = 2.20$, $p < .05$.[11] Thus, actors may have been more accurate only because they relied both on causal theories and covariation information, while covariation observers relied solely on covariation information. In order to test this possibility, second-order partial accuracy correlations, simultaneously controlling for covariation observers' estimates and mean no-covariation observers' estimates, were calculated for actors. These partial correlations averaged .34, .62, and .69, for initial, delayed and no attention actors, $ts(15) > 2.60$, $ps < .02$. Thus, even when both shared theories and covariation detection are controlled for, actors retain substantial accuracy in assessing influences on their own judgments.

These data strongly suggest that actors do have some privileged information beyond shared theories and covariation detection on which to base their causal reports. However, there is an alternative possibility. Perhaps actors were more accurate than observers, not because they had access to privileged information, but because they were more motivated than observers to produce accurate reports. Conceivably, the experimental task may have been more interesting for the actors, or they may have been especially motivated to understand their own responses. This could have caused them to work harder at assessing covariations between the target factors and their own judgments, resulting in greater accuracy.

According to this interpretation, both actors and covariation observers based their causal estimates on covariation information, but actors made better use of this information. If this interpretation is correct, the estimates of both actors and observers should account for the variance in actual influences that is detectable by covariation assessment, but actors estimates should account for more of this

variance. Conversely, observers' estimates should not account for any variance that actors' estimates do not account for (i.e., observers' accuracy partial correlations, controlling for actors' estimates, should be nonsignificant). This was not the case. Covariation observers' partials averaged .27, .18, and .38, for initial, delayed and no attention actors' data. These average partial correlations are significant at the .05 level for initial and no attention actors' data, and at the .10 level for delayed attention actors' data. Thus, it would appear that covariation observers based their subjective influence estimates at least partly on different information than did the actors. Because covariation observers relied little on shared theories, this result suggests that covariation observers may have actually made greater use of covariation information than did the actors.

Discussion

Effects of the attention instructions. Contrary to expectations, the accuracy of actors' self-reports was not increased by instructions to attend to influences on their liking judgments. Indeed, attention instructions appear to have caused a decrease in actors' accuracy for the first block of judgments. Several analyses suggest that this decrease in accuracy was in some way mediated by a reduction in the variance in actors' judgments accounted for by the target factors. Given our knowledge of the limited capacity of people's short-term memory stores (where information attended to is presumably kept), a likely interpretation of this result is that attempting to attend to influences on their judgments may have interfered with actors' judgmental processes. This could have reduced the reliability of their liking judgments and thereby reduced the accuracy of their self-reports (cf. Gavanski & Hoffman, in press).[12]

Why then did attention instructions not have a corresponding effect (on either initial or delayed attention actors) for the second block of judgments? Ericsson and Simon (1980), as well as others, have argued that with repeated practice at a task, the cognitive processes involved become more automated. As processes become more automated, they require fewer attentional resources, and, hence, should be less subject to interference from other processing demands. By the time that actors judged the second block of profiles, they had already had considerable experience with the judgment task. Consequently, their judgmental processes may have been sufficiently automated so as to be relatively free from interference by the additional processing demands of attending to influences on the judgments.

Previous researchers have found that the execution of a cognitively demanding task interferes with participants' verbalizations of task-directed processes (Ericsson & Simon, 1980). If we assume that verbalization and attention entail similar processing demands, the present results suggest that the converse may also be true; attention or verbalization may interfere with the execution of a cognitively demanding task.

According to this interpretation, attention to judgments will interfere with judgmental processes (and hence reduce accuracy) primarily when the judgment task is highly demanding of attentional resources. This interpretation can be tested easily in future research, as it entails several predictions. For example, complex tasks should be more subject to interference from attention to judgmental processes than simple tasks, because complex tasks require more attentional resources than simple tasks. Also, instructions to attend to particular judgment processes should interfere with all ongoing attention-demanding processes, and not just the particular ones toward which attention is directed.

Regardless of whether or not the interference interpretation is correct, the results of the attention manipulation have important implications for the question of self-knowledge. Several studies showing actors' reports to be more accurate than observers' have included instructions or procedures likely to direct participants' attention to influences on their judgmental processes. The present results suggest that actors in these studies were accurate despite, rather than because of, attempts to monitor their judgment processes. Further, the present results strengthen previous evidence for privileged self-knowledge, because an alternative interpretation of this evidence (i.e., the self-fulfilling prophecy) was not supported. Although the attention instructions did change the way the target factors influenced some actors' judgments, these changes caused the actual effects to correspond less, rather than more, with actors' estimates of these effects. At the same time, however, these results suggest that findings that actors are no more accurate than observers may not be attributable to the fact that participants were not forwarned to attend to their judgmental processes.

Nevertheless, there may be some circumstances where attention instructions will increase the accuracy of actors' reports. This seems particularly likely to occur when there are delays between the experimental task and the eliciting of self-reports. In such cases, prior attention instructions may increase actors' accuracy by ensuring that relevant information is encoded in memory (cf. Kraut & Lewis, 1982).

Wilson et al. (1982) have demonstrated that the self-fulfilling prophecy does occur at least sometimes. Recall that these researchers found that attention instructions caused participants' sleep and/or mood ratings to change to correspond more closely with their prior theories of the sleep-mood relationship. Several methodological differences between the Wilson et al. and present studies could account for their different findings with respect to attention manipulations. First, in the Wilson et al. study, participants not only rated their moods, but also rated the levels of the predictor variables, including sleep. Consequently, even in the absence of any change in the actual sleep-mood relationships, participants' retrospective reports of their amount of sleep may have changed so as to cause the rated sleep-mood relationship to correspond with their prior theories. In fact, it is even possible that the attention instructions in the Wilson et al. study led participants to believe that sleep was a particularly important variable in the experimenters' eyes, thus causing them to make more reliable sleep ratings. This in turn could have increased the accuracy of their self-reports.

Other features of the Wilson et al. study make the occurrence of a self-fulfilling prophecy particularly likely. Namely, participants rated the amount of sleep they had obtained the previous night (as well as their moods) at the end of each day. The extended period of time between the actual event (i.e., sleep) and participants' rating of the event makes it particularly likely that reconstructive memory effects may have altered their sleep ratings (cf. Bartlett, 1932; Neisser, 1967). Further, because mood varies not only on a day-to-day basis, but also throughout the day, participants may have focussed on those periods during the day when their moods corresponded with their theories of the sleep-mood relationship when they rated their moods. According to this interpretation, attention instructions caused participants' causal theories to guide the way they retrieved and reconstructed information about their sleep and moods from long-term memory, but did not change the actual sleep-mood relationships.

The bases of causal reports. This study provides strong evidence that people do possess some privileged knowledge about influences on their own judgments, and

that this knowledge contributes to the accuracy of their causal self-reports. Actors in the present study were highly accurate at assessing influences on their own liking judgments, more accurate than either covariation observers or no-covariation observers. Further, although actors appear to have relied somewhat on both covariation information and shared theories in making their self-reports, partial correlations showed that actors retained a substantial level of accuracy even after controlling for the joint contribution of covariation detection and shared theories to their accuracy.

The contribution of covariation assessment to the accuracy of actors' and observers' causal reports is of particular interest, because it has not been examined previously. Providing observers with covariation information dramatically increased the accuracy of their causal reports. The reports of no-covariation observers accounted for an average of less than eight percent of the variance in the actual stimulus influences on the actors, while those of covariation observers accounted for 40 percent. The fact that covariation observers were more accurate than no-covariation observers only for actors whose covariation data they examined indicates that their increased accuracy was indeed due to covariation assessment, rather than to other factors (e.g., use of their own introspective information). Thus, it appears that access to covariation information can importantly increase the accuracy of causal reports.

This conclusion requires some qualification. The low correspondence between covariation and no-covariation observers' causal reports suggests that access to covariation information reduced observers' reliance on shared theories. Because shared theories did poorly at accounting for influences on the actors, and covariation detection did quite well, the accuracy of covariation observers was likely not much reduced by their lesser reliance on shared theories. However, the target factors in the present study were chosen specifically because of the variability in their influences between actors, which shared theories would not account well for. There are probably many circumstances where shared theories account very well for stimulus influences, and where covariation detection is more difficult. Under these

circumstances, reliance on covariation detection to the exclusion of shared theories may actually decrease the accuracy of observers' causal reports. Nevertheless, the present findings indicate that covariation information can, under at least some circumstances, increase the accuracy of causal reports.

There is reason, however, to believe that covariation information made less of a contribution to the accuracy of actors' than observers' causal reports. First, both actors' and covariation observers' partial accuracy correlations (controlling for the others' estimates) were significant, suggesting that the two groups relied at least partly on different kinds of information in making their causal estimates. Because covariation observers relied very little on shared causal theories and had no information about the actors but their covariation data, this finding suggests that observers made more use of covariation information than actors did. Second, although the actor accuracy semi-partial correlations (partialling covariation observers' estimates from actors' estimates) were lower than their zero-order accuracy correlations, the decrease in accuracy was not large.

There are three reasons why actors may have relied less on, or been less accurate at assessing, covariation information than observers. First, to the extent that actors possess, or believe they possess, privileged knowledge about influences on their own responses, they may consider it unnecessary to rely on covariation information. Observers know that they lack this privileged information and hence may rely more on any covariation information that is available to them. Second, to the extent that actors had strong prior expectations about how the target factors would influence their own judgments, these expectations may have led them to overlook actual correlations, or perceive "illusory correlations" (cf. Crocker, 1981; Jennings et al., 1982; Nisbett & Ross, 1980). Of course, observers also have prior theories about how the target factors would influence actors, but it is likely that they are less convinced than actors of the accuracy of their prior theories. Hence, observers' theories may interfere less than actors' theories with the assessment of covariation. Finally, the experimental task was more complex for actors than for observers. Observers only had to assess covariations, whereas actors also had to

make liking judgments on the basis of the target profiles. Given people's limited attentional resources, it seems possible that making liking judgments interfered with the actors' ability to assess covariation.

The positive correlations between actors' and no-covariation observers' causal reports suggest that actors also relied somewhat on shared theories in making their reports. Further, differences between actors' zero-order and semi-partial accuracy correlations would appear to indicate that reliance on shared theories did contribute at least a small amount to actors' accuracy. However, causal theories may themselves be formed partly through a history of accurate introspection in similar situations (Kraut & Lewis, 1982). Thus, some correspondence between actors' and no-covariation observers' reports might be expected to the extent that the target factors have similar influences between people. For this reason, the actor-observer correspondence correlations and actor accuracy partial correlations (partialling no-covariation observers' reports) may provide somewhat inflated estimates of actors' reliance on shared theories.

In sum, the results suggest that actors' accuracy stemmed from three sources: shared causal theories, covariation assessment, and privileged knowledge about influences on their own liking judgments. At the present time, it is unclear precisely what kind of privileged information actors relied on. It may consist of memories of judgment processes, idiosyncratic causal theories, or even a history of covariation assessment in similar prior situations.

Whatever privileged knowledge actors relied on does not appear to be enhanced by attention to judgmental processes. It might be argued that attention instructions did not increase accuracy because actors spontaneously directed their full attention to their judgmental processes. But if this were the case, then why did attention instructions change the way the target factors influenced actors' judgments, and actually reduce their accuracy, for the first block of judgments? Surely, if actors were already attending to influences on their judgments, then attention instructions should have had no effect whatsoever on their performance of the judgment task or their accuracy at assessing influences on their judgments.

The fact that attention to judgmental processes did not increase accuracy could be interpreted as suggesting one of two things. Either actors' privileged knowledge is not based on direct awareness of their mental activity, or awareness of mental activity is largely an automatic, involuntary phenomenon.

One possible explanation of actors' privileged knowledge is that the actors generated their own algorithms for judging the target profiles and then retrospectively reported on these algorithms. This could conceivably occur without direct awareness of the algorithm's execution (cf. Nisbett and Wilson, 1977). This interpretation is consistent with the results of the attention manipulation. If actors were executing self-generated algorithms, then attention instructions could well have interfered with the execution of the algorithms without affecting actors' self-reports of the algorithm. Even if this interpretation is correct, the present findings indicate that actors do have some privileged awareness of their mental activity. As Wright and Rip (1981) state, "awareness of a self-generated plan qualifies as awareness of private mental activity" (p. 603).

Clearly, the present findings are largely inconsistent with Nisbett and Wilson's original claims about the origins and accuracy of causal self-reports. Actors in the present study did not base their causal reports primarily on shared causal theories, and actors' reports were far more accurate than those of observers. Whether or not the privileged information that actors utilize can truly be termed "introspective" is an open question at the present time, and will likely remain so until methods can be established to distinguish reliably between the various kinds of privileged information that actors potentially have at their disposal. Nevertheless, these findings strongly weaken the empirical basis for claims that people do not have introspective awareness of their judgmental processes.

In many ways, the present results are in agreement with Wilson and Stone's (in press) revision of the Nisbett and Wilson position. First, the results are consistent with the notion that covariation detection can contribute to the accuracy of actors' reports, and so may be partly responsible for actors' accuracy advantage over observers. Second, the results support Wilson and Stone's suggestion that

actors and observers utilize different kinds of information in making their causal reports. Even when actors and observers had access to the same covariation information, they appeared to make differential use of this information. However, the present findings do not support Wilson and Stone's contention that actors will generally be more accurate than observers only to the extent that they can successfully detect covariations between stimulus variables and their responses. Wilson and Stone maintain that in everyday life, where covariation detection is much more difficult than in the experimental laboratory, actors' accuracy advantage over observers is likely to be lost. The findings of the present experiment suggest that the superior accuracy of actors is not totally attributable to covariation detection. Thus, it seems likely that actors' self-reports will continue to be more accurate than observers' reports, even in complex everyday judgment situations.

However, one must be careful about generalizing from an experimental situation in which a small number of stimulus variables are orthogonally manipulated in a repeated-measures design, to "real-world" situations where people must often evaluate numerous variables, many of which are intercorrelated to varying degrees. Until we have a clearer understanding of what kinds of privileged information actors rely on, we cannot confidently predict what factors will influence the availability and accuracy of this information. Consequently, we cannot make definitive statements about the levels of accuracy to be expected under real-world conditions.

Given the limitations of the actor-observer paradigm for examining the question of self-knowledge (cf., Wright & Rip, 1982), it is difficult to conceive of ways to distinguish empirically between the various kinds of privileged information that actors could potentially rely on. Perhaps the most promising approach to identifying the nature of people's privileged self-knowledge is to examine what mechanisms do or do not mediate the accuracy of people's self-reports. The present research is an early step in this direction.

Footnotes

[1] Wright and Rip's covariation control conditions may not have provided an adequate control for actors' reliance on covariation information for two reasons. First, Wright and Rip's estimate of how much covariation information actors recalled at the time they made their self-reports was based on the reports of only three participants and thus may not provide a very reliable index of actors' memory for covariation information. Second, and more importantly, actors may have formed their impressions of stimulus influences on their judgments while they were performing the judgment task and had full access to covariation information. The fact that these actors made concurrent verbal reports on their judgment processes makes it particularly likely that this was the case.

[2] It should be noted that it can not be determined whether the objective sleep-mood relationship was actually altered for the daily focus actors, or whether this manipulation merely influenced participants' memories of how much they had slept the night before and what their mood was like earlier in the day.

[3] Suspiciousness probes administered to pretest participants indicated that the cover story was convincing. Of the 98 pretest participants, only 3 suspected the true purpose of the research. Of an additional sample of 16 pretest participants who had received attention instructions prior to the judgment task, only 1 suspected the true purpose of the research. In fact, very few participants reported any suspicions at all. Because the cover story in the pretest was identical to that in the main study and the procedure was virtually identical, we may assume that there were few suspicions in the main study as well.

[4] Unless otherwise indicated, all analyses were performed on measures taken over both blocks of profiles.

[5] The proportion of variance in actual influences accounted for by the reports of actors, covariation and no-covariation observers was estimated by

calculating the mean of the squared accuracy correlations for each of these groups, with negative correlations set to zero.

[6] Hotelling's t-test for correlated correlations was used to test the significance of the differences between these correlations (Guilford & Fruchter, 1973, p. 167).

[7] Actors' data were collapsed across attention conditions for the calculation of the correlations reported in this paragraph.

[8] Because the accuracy data of actors, covariation observers, and no-covariation observers are not independent, analyses between these groups were performed using paired difference tests. For the same reason, within-group comparisons between measures obtained for the first block of profiles and those obtained for the second block were also performed using paired difference tests.

[9] Note that the partial and semi-partial accuracy correlations reported here are conservative estimates of actors' privileged knowledge. This is because the mean observer estimates (based on the estimates of the eight same-sex observers) that were partialled from these correlations are likely more reliable than the individual actors' estimates they were partialled from.

[10] These analyses, as well as some subsequent ones, rely on the assumption that the total variability in the target factors' influences can be partitioned into that detectable by covariation assessment and that not detectable (or difficult to detect) by covariation assessment. Given previous findings (cf., Crocker, 1981; Jennings, Amabile, & Ross, 1982) that various characteristics of the data (e.g., strength of relationships, direction of relationships, causal relationships, frequency of instances), as well as perceiver characteristics (e.g., prior theories, many of which are probably shared), strongly and consistently influence the accuracy of covariation judgments, this seems a reasonable assumption to make.

[11] The average no-covariation observer intercorrelation was calculated by correlating the subjective influence estimates of each observer with the average estimates of the other seven same-sex observers, and then averaging these correlations across observers.

[12] The lower accuracy of initial attention actors for the first block of profiles than for the second block may initially seem inconsistent with Ericsson and Simon's (1980) claim that cognitive processes become less accessible as they become more automated. However, the difference in accuracy between the two blocks can be considered an artifact of a difference in the reliability of these actors' liking judgments for the two blocks. Thus, we can not attribute the increased accuracy for the second block to increased self-awareness. In fact, because actors made both sets of subjective influence estimates after the second block of judgments, the present experimental design does not permit a test of Ericsson and Simon's claim.

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Appendix A

Schematic Listing of 32 Target Profiles

1.	T	T	T	T	T	T	T	T
2.	T	T	T	T	F	T	T	F
3.	T	T	T	F	T	T	F	F
4.	T	T	T	F	F	T	F	T
5.	T	T	F	T	T	F	T	F
6.	T	T	F	T	F	F	T	T
7.	T	T	F	F	T	F	F	T
8.	T	T	F	F	F	F	F	F
9.	T	F	T	T	T	F	F	F
10.	T	F	T	T	F	F	F	T
11.	T	F	T	F	T	F	T	T
12.	T	F	T	F	F	F	T	F
13.	T	F	F	T	T	T	F	T
14.	T	F	F	T	F	T	F	F
15.	T	F	F	F	T	T	T	F
16.	T	F	F	F	F	T	T	T
17.	F	T	T	T	T	F	F	T
18.	F	T	T	T	F	F	F	F
19.	F	T	T	F	T	F	T	F
20.	F	T	T	F	F	F	T	T
21.	F	T	F	T	T	T	F	F
22.	F	T	F	T	F	T	F	T
23.	F	T	F	F	T	T	T	T
24.	F	T	F	F	F	T	T	F
25.	F	F	T	T	T	T	T	F
26.	F	F	T	T	F	T	T	T
27.	F	F	T	F	T	T	F	T
28.	F	F	T	F	F	T	F	F
29.	F	F	F	T	T	F	T	T
30.	F	F	F	T	F	F	T	F
31.	F	F	F	F	T	F	F	F
32.	F	F	F	F	F	F	F	T

Note: Factors are presented in the same order as in the target profiles (see Appendix B). The two "dummy factors" (items 3 and 7 in Appendix B) have been omitted. The Ts represent "true" responses and the Fs represent "false" responses. The order of profiles was randomized separately for each block.

Appendix B

Sample Profile Sheet

REKLER'S 19-FP PERSONALITY INVENTORY

Name: [redacted]

Sex: M F

Please respond to each of the following statements by putting a check mark in the appropriate space.

1. Most of my friends are of the opposite sex.
   true ___ false ___
2. I am often bored.
   true ___ false ___
3. I believe that a university education is a valuable asset.
   true ___ false ___
4. I am more attractive than the average person my age.
   true ___ false ___
5. I believe that there is too much violence on TV.
   true ___ false ___
6. I often swear when I am annoyed.
   true ___ false ___
7. I have never lied in my life.
   true ___ false ___
8. I only work as hard as I have to.
   true ___ false ___
9. I like to be the center of attention.
   true ___ false ___
10. I am a smoker.
    true ___ false ___

PLEASE GO ON TO THE NEXT PAGE.

Appendix C

Preliminary Instructions to All Participants

As many of you know, the first year of university is often a very stressful time for students. Not only do they have to cope with anxiety about their grades, but they have to deal with a new environment in which they are surrounded by strangers. Clearly, how well a student interacts with other people and forms new friendships will strongly influence how well he or she copes with first-year stress. Different personality types may be more or less successful at forming friendships with others. We would like to be able to identify students who are likely to have problems in their interpersonal relationships. We are interested in whether short personality profiles can be used to identify students who tend to be popular or unpopular. So, we need your help to find out what kinds of people are generally liked or disliked by others.

Different groups of you will be asked to do different tasks. We will be giving you written instructions on how to do your tasks. Please read all the instructions very carefully before you begin any of the tasks. Some of the tasks are quite complicated, so please don't hesitate to ask me if anything at all is unclear to you. Please don't put your name or student number on any of the materials we will be giving you, as we want to ensure that your responses are anonymous.

Appendix D

Liking Rating Instructions to All Actors

Last term we administered a short form of *Rekler's 19-FP Personality Inventory* to a large number of male students enrolled in Psychology 260. (We will be studying females in a later project.) One of the booklets in your folder (Booklet A) contains the responses of 32 different students to 10 items from this inventory. Some of you will have items from different sections of the inventory. The students names have been blacked out to preserve their anonymity, and they are identified only by numbers in the top right corner of each inventory. We would like you to look over each person's responses to the items on his personality inventory and try to imagine what kind of person would respond to the items in that way. Then, in the second booklet provided (Booklet B), please rate how much you think you would like that person. In other words, we want you to use each person's responses to the personality inventory items to estimate how much you would like that person. So, what we want you to do is read over the first person's responses (in Booklet A), and then rate how much you would like that person (in Booklet B). Then go on to the second person, and so on. **THERE ARE ADDITIONAL IMPORTANT INSTRUCTIONS FOR YOU ON THE FRONT PAGE OF EACH BOOKLET. PLEASE MAKE SURE YOU READ THEM CAREFULLY BEFORE YOU LOOK AT ANY OF THE PERSONALITY INVENTORIES. THIS IS VERY IMPORTANT.** We've done similar studies in the past and have found that students can become pretty confused about what they're suppose to do if they rush through the instructions, because the task is quite complicated. So we really want to emphasize the importance of reading the instructions very carefully. If anything is unclear, please raise your hand. If these instructions are clear to you, please open your folders now and read the instructions on the front page of Booklet A.

Appendix E

Attention Instructions for First Block: Initial Attention Actors

It is very important that you read these instructions carefully before going on.

On the following pages are 32 personality inventories numbered from 1 to 32. Each inventory contains 10 items. The people who filled out the inventories had the option of answering "true" or "false" to each item. Please look over each person's answers to the personality inventory items and try to imagine what kind of person would respond to the items in that way. Then rate how much you think you would like that person on the corresponding rating scale in Booklet B.

We are particularly interested in how each of the various items of information in the personality inventories affects your liking judgments. As you make your liking ratings, we would like you to pay very close attention to how people's responses to each item influence your liking of them. For some items, "true" responses may make you like people more than "false" responses. For some items, "true" responses may make you like people less than "false" responses. Finally, for some items, "true" or "false" responses may have no effect on your liking. What we would like you to do is pay special attention to how much, and in what way, each item in the personality inventories influences your liking. **THIS IS VERY IMPORTANT.** Please pay close attention to how each item individually is affecting your liking and try to remember this.

We wish to emphasize that your responses will be anonymous. So please rate your liking for each person as carefully and honestly as you can without worrying about how other people might make these ratings or what other people might think of your ratings. If anything is unclear to you, please raise your hand. If the instructions are clear, you may begin now.

Attention Instructions for First Block: Delayed and No Attention Actors

It is very important that you read these instructions carefully before going on.

On the following pages are 32 personality inventories numbered from 1 to 32. Each inventory contains 10 items. The people who filled out the inventories had the option of answering "true" or "false" to each item. Please look over each person's answers to the personality inventory items and try to imagine what kind of person would respond to the items in that way. Then rate how much you think you would like that person on the corresponding rating scale in Booklet B.

We wish to emphasize that your responses will be anonymous. So please rate your liking for each person as carefully and honestly as you can without worrying about how other people might make these ratings or what other people might think of your ratings. If anything is unclear to you, please raise your hand. If the instructions are clear, you may begin now.

Appendix F

Attention Instructions for Second Block: Initial Attention Actors

It is very important that you read these instructions carefully before going on.

Booklet A in this folder contains the responses of 32 more students to the 10 personality inventory items. Booklet B contains liking rating scales. Your task is the same as the one you just completed. Once again, we are interested in how each of the various items of information in the personality inventories affects your liking judgments. As you make your liking ratings this time, we would like you to continue to pay very close attention to how people's responses to each item influence your liking of them. Please pay close attention to how each item individually is affecting your liking and try to remember this. If these instructions are clear to you, you may begin this task.

Attention Instructions for Second Block: Delayed Attention Actors

It is very important that you read these instructions carefully before going on.

Booklet A in this folder contains the responses of 32 more students to the 10 personality inventory items. Booklet B contains liking rating scales. Your task is the same as the one you just completed, EXCEPT that this time we are particularly interested in how each of the various items of information in the personality inventories affects your liking judgments. As you make your liking ratings this time, we would like you to pay very close attention to how people's responses to each item influence your liking of them. For some items, "true" responses may make you like people more than "false" responses. For some items, "true" responses may make you like people less than "false" responses. Finally, for some items, "true" or "false" responses may have no effect on your liking. What we would like you to do is pay special attention to how much, and in what way, each item in the personality inventories influences your liking. **THIS IS VERY IMPORTANT.** Please pay close attention to how each item individually is affecting your liking and try to remember this. If these instructions are clear to you, you may begin this task.

Attention Instructions for Second Block: No Attention Actors

It is very important that you read these instructions carefully before going on.

Booklet A in this folder contains the responses of 32 more students to the 10 personality inventory items. Booklet B contains liking rating scales. Your task is the same as the one you just completed. If these intructions are clear to you, you may begin this task.

Appendix G

Liking Rating Scales: First Block

BOOKLET B - LIKING RATINGS

Sex M F

Instructions: Indicate how much you think you would like each person by circling the appropriate number on the scale corresponding to that person. Negative numbers indicate a disliking for a person. Positive numbers indicate a liking for a person. The specific positive or negative number you choose will depend on the degree to which you would like or dislike the person you are rating. The zero indicates neither liking nor disliking for a person. Use the zero only if you really have no feeling of liking or disliking.

Please be very careful not to skip a line or circle two numbers on the same line. Periodically check to see that the number of the person you are rating in this booklet corresponds to the number of the person in Booklet A.

	WOULD DISLIKE THIS PERSON VERY MUCH												WOULD LIKE THIS PERSON VERY MUCH
Person 1.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 2.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 3.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 4.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 5.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 6.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 7.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 8.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 9.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 10.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6

Please check that the person number here corresponds to that in Booklet A.

	WOULD DISLIKE THIS PERSON VERY MUCH												WOULD LIKE THIS PERSON VERY MUCH
Person 11.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 12.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 13.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 14.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 15.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 16.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 17.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 18.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 19.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 20.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6

Please check that the person number here corresponds to that in Booklet A.

Person 21.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 22.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 23.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 24.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 25.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 26.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 27.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 28.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 29.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 30.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6

Please check that the person number here corresponds to that in Booklet A.

Person 31.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 32.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6

Liking Rating Scales: Second Block

BOOKLET B - LIKING RATINGS
PART 2

Sex M F

Instructions: Indicate how much you think you would like each person by circling the appropriate number on the scale corresponding to that person. Negative numbers indicate a disliking for a person. Positive numbers indicate a liking for a person. The specific positive or negative number you choose will depend on the degree to which you would like or dislike the person you are rating. The zero indicates neither liking nor disliking for a person. Use the zero only if you really have no feeling of liking or disliking.

Please be very careful not to skip a line or circle two numbers on the same line. Periodically check to see that the number of the person you are rating in this booklet corresponds to the number of the person in Booklet A.

	WOULD DISLIKE THIS PERSON VERY MUCH												WOULD LIKE THIS PERSON VERY MUCH
Person 1.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 2.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 3.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 4.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 5.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 6.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 7.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 8.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 9.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 10.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6

Please check that the person number here corresponds to that in Booklet A.

	WOULD DISLIKE THIS PERSON VERY MUCH												WOULD LIKE THIS PERSON VERY MUCH
Person 11.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 12.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 13.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 14.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 15.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 16.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 17.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 18.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 19.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 20.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Please check that the person number here corresponds to that in Booklet A.													
Person 21.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 22.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 23.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 24.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 25.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 26.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 27.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 28.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 29.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 30.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Please check that the person number here corresponds to that in Booklet A.													
Person 31.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
Person 32.	-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6

Appendix H

Subjective Influence Rating Instructions for Actors

It is very important that you read these instructions carefully before going on.

We are particularly interested in how the various items of information in the personality inventories affected your liking judgments. So we would like you to estimate how much, on the average, each of the 10 items in the personality inventories influenced your liking ratings. The people who filled out the personality inventories you looked over had the option of responding "true" or "false" to each item. We wish to know how much, on the average, the way people responded to each item influenced your liking of them. You may have liked people more who responded "true" to a particular item, you may have liked people more who responded "false" to a particular item, or you may have liked people who responded "true" and people who responded "false" equally.

On the following pages, we ask you what effect people's responses to each item had on your liking of them. Recall that you rated two sets of 32 personality inventories. We would like you to make a **SEPARATE** estimate of how each item influenced your liking ratings for each set of 32 personality inventories. In other words, we will ask you to indicate, on one page, how each item influenced your liking ratings for the <u>first</u> set of 32 inventories, and on another page, we will ask you to indicate how each item influenced liking ratings for the <u>second</u> set of 32 inventories. If you think that any item influenced your liking ratings the same way for the first and second sets of inventories, you may circle the same number for that item. For each item, we would like you to rate how much you think "true" versus "false" responses influenced your liking. Below each item is the following scale:

-6 -5 -4 -3 -2	-1 0 +1	+2 +3 +4 +5 +6
"false" response made me like people much more than "true" response	response made no difference to my liking	"true" response made me like people much more than "false" response

If "true" responses made you like people <u>more</u> than "false" responses, you should circle a positive number (on the right side of the scale). The specific positive

number you choose will depend on how much more you liked "true" responders than "false" responders. If "true" responses made you like people less than "false" responses, you should circle a negative number (on the left side of the scale). The specific negative number you choose should depend on how much less you liked "true" responders than "false" responders. If you think "true" and "false" responses made no difference to your liking for people, you should circle the 0 in the middle of the scale. Remember, we want you to make separate ratings for how the items influenced you for the first set of 32 inventories and for the second set of 32 inventories. We know these are complicated instructions, so if anything at all is unclear to you, please ask the researcher to explain it. If these instructions are clear, you may go ahead with your task.

Appendix I

Subjective Influence Rating Scales for Actors: First Block

ON THIS PAGE PLEASE RATE HOW YOU THINK EACH ITEM INFLUENCED YOUR LIKING RATINGS FOR THE FIRST SET OF 32 PERSONALITY INVENTORIES.

---

1. Most of my friends are of the opposite sex.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
me like people much — no difference — me like people much
more than "true" response — to my liking — more than "false" response

---

2. I am often bored.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
me like people much — no difference — me like people much
more than "true" response — to my liking — more than "false" response

---

3. I believe that a university education is a valuable asset.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
me like people much — no difference — me like people much
more than "true" response — to my liking — more than "false" response

---

4. I am more attractive than the average person my age.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
me like people much — no difference — me like people much
more than "true" response — to my liking — more than "false" response

---

5. I believe that there is too much violence on TV.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
me like people much — no difference — me like people much
more than "true" response — to my liking — more than "false" response

---

6. I often swear when I am annoyed.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
me like people much — no difference — me like people much
more than "true" response — to my liking — more than "false" response

---

7. I have never lied in my life.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
me like people much — no difference — me like people much
more than "true" response — to my liking — more than "false" response

---

8. I only work as hard as I have to.

-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
"false" response made me like people much more than "true" response						response made no difference to my liking					"true" response made me like people much more than "false" response	

9. I like to be the center of attention.

-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
"false" response made me like people much more than "true" response						response made no difference to my liking					"true" response made me like people much more than "false" response	

10. I am a smoker.

-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
"false" response made me like people much more than "true" response						response made no difference to my liking					"true" response made me like people much more than "false" response	

Subjective Influence Rating Scales for Actors: Second Block

ON THIS PAGE PLEASE RATE HOW YOU THINK EACH ITEM INFLUENCED YOUR LIKING RATINGS FOR THE SECOND SET OF 32 PERSONALITY INVENTORIES.

---

1. Most of my friends are of the opposite sex.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made me like people much more than "true" response — response made no difference to my liking — "true" response made me like people much more than "false" response

---

2. I am often bored.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made me like people much more than "true" response — response made no difference to my liking — "true" response made me like people much more than "false" response

---

3. I believe that a university education is a valuable asset.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made me like people much more than "true" response — response made no difference to my liking — "true" response made me like people much more than "false" response

---

4. I am more attractive than the average person my age.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made me like people much more than "true" response — response made no difference to my liking — "true" response made me like people much more than "false" response

---

5. I believe that there is too much violence on TV.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made me like people much more than "true" response — response made no difference to my liking — "true" response made me like people much more than "false" response

---

6. I often swear when I am annoyed.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made me like people much more than "true" response — response made no difference to my liking — "true" response made me like people much more than "false" response

---

7. I have never lied in my life.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made me like people much more than "true" response — response made no difference to my liking — "true" response made me like people much more than "false" response

---

8. I only work as hard as I have to.

-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
"false" response made me like people much more than "true" response						response made no difference to my liking					"true" response made me like people much more than "false" response	

9. I like to be the center of attention.

-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
"false" response made me like people much more than "true" response						response made no difference to my liking					"true" response made me like people much more than "false" response	

10. I am a smoker.

-6	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5	+6
"false" response made me like people much more than "true" response						response made no difference to my liking					"true" response made me like people much more than "false" response	

Appendix J

Instructions to Covariation Observers: Part 1

It is very important that you read these instructions carefully before going on.

Participants in this study have been randomly divided into two groups. We will call those in Group 1 "ACTORS" and those in Group 2 "OBSERVERS". You are a member of the OBSERVER group. We are going to describe to you the ACTORS' task, and then, instead of having you do the task yourself, we will ask you to guess how one ACTOR performed the task.

Last term we administered a short form of *Rekler's 19-FP Personality Inventory* to a large number of male students enrolled in Psychology 260 (We will be studying females in a later project.) These students had the option of responding "true" or "false" to each item on the inventory. ACTORS were required to look over each student's responses to 10 items on the personality inventory, and, on the basis of these responses, to decide how much they would like the student. So, each ACTOR looked at the way several students had responded to 10 items from a personality inventory and used those responses to estimate how much he or she would like each of these students.

Booklet A in your folder contains the responses of 32 students to the 10 personality inventory items. Booklet B in your folder contains the liking ratings made by one ACTOR for each of the 32 students who filled out the inventories. The ACTOR whose liking ratings you have is the same sex as you are. The personality inventories in Booklet A are numbered from 1 through 32. These numbers correspond to the person numbers in Booklet B. We are interested in whether you can, by looking over the ACTOR'S liking rating for each person, determine how much each of the 10 items in the personality inventories influenced this ACTOR'S liking ratings.

We would like you to look over the responses of each person to the 10 items on his inventory, and then look at the ACTOR'S liking rating for that person. As you look over the inventories and the ACTOR'S liking ratings, we would like you to try to determine how each item influenced this ACTOR'S liking.

Instructions to Covariation Observers: Part 2

It is very important that you read these instructions carefully before going on.

Booklet A in this folder contains the responses of 32 more students to the 10 personality inventory items. Booklet B contains the liking ratings of the same ACTOR whose ratings you just looked over for these 32 students. Your task is the same as the one you just completed. We would like you to try to determine how people's responses to each item influenced the ACTOR'S liking ratings for these 32 people. If these instructions are clear to you, you may begin this task.

Instructions to Covariation Observers: Part 3

It is very important that you read these instructions carefully before going on.

We are particularly interested in how you think the various items of information in the personality inventories affected the ACTOR'S liking judgments. So we would like you to estimate how much, on the average, each of the 10 items in the personality inventories influenced the ACTOR'S liking ratings. The people who filled out the personality inventories you looked over had the option of responding "true" or "false" to each item. We wish to know how much, on the average, the way people responded to each item influenced the ACTOR'S liking of them. The ACTOR may have liked people more who responded "true" to a particular item, the ACTOR may have liked people more who responded "false" to a particular item, or the ACTOR may have liked people who responded "true" and people who responded "false" equally.

On the following pages, we ask you what effect people's responses to each item had on the ACTOR'S liking of them. Recall that the ACTOR rated two sets of 32 personality inventories. We would like you to make a **SEPARATE** estimate of how each item influenced the ACTOR'S liking ratings for each set of 32 personality inventories. In other words, we will ask you to indicate, on one page, how each item influenced the ACTOR'S liking ratings for the <u>first</u> set of 32 inventories, and on another page, we will ask you to indicate how each item influenced the ACTOR'S liking ratings for the <u>second</u> set of 32 inventories. If you think that any item influenced the ACTOR'S liking ratings the same way for the first and second sets of inventories, you may circle the same number for that item. For each item, we would like you to rate how much, on the average, you think "true" versus "false" responses influenced the ACTOR'S liking. Below each item is the following scale:

-6 -5 -4 -3 -2	-1 0 +1	+2 +3 +4 +5 +6
"false" response made <u>actor</u> like people much more than "true" response	response made no difference to <u>actor's</u> liking	"true" response made <u>actor</u> like people much more than "false" response

If you think that "true" responses made the ACTOR like people <u>more</u> than "false"

responses, you should circle a positive number (on the right side of the scale). The specific positive number you choose will depend on how much more you think the ACTOR liked "true" responders than "false" responders. If you think that "true" responses made the ACTOR like people less than "false" responses, you should circle a negative number (on the left side of the scale). The specific negative number you choose should depend on how much less you think the ACTOR liked "true" responders than "false" responders. If you think "true" and "false" responses made no difference to the ACTOR'S liking for people, you should circle the 0 in the middle of the scale. Remember, we want you to make separate ratings for how the items influenced the ACTOR for the first set of 32 inventories and for the second set of 32 inventories.

Note that we are interested in how you think the ACTOR whose liking ratings you looked over was influenced by each item, not in how you would be influenced by the item. We know these are complicated instructions, so if anything at all is unclear to you, please ask the researcher to explain it. If these instructions are clear, you may go ahead with your task.

Appendix K

Subjective Influence Rating Scales for Covariation Observers: First Block

ON THIS PAGE PLEASE RATE HOW YOU THINK EACH ITEM INFLUENCED THIS ACTOR'S LIKING RATINGS FOR THE FIRST SET OF 32 PERSONALITY INVENTORIES.

---

1. Most of my friends are of the opposite sex.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
actor like people much — no difference — actor like people much
more than "true" response — to actor's liking — more than "false" response

---

2. I am often bored.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
actor like people much — no difference — actor like people much
more than "true" response — to actor's liking — more than "false" response

---

3. I believe that a university education is a valuable asset.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
actor like people much — no difference — actor like people much
more than "true" response — to actor's liking — more than "false" response

---

4. I am more attractive than the average person my age.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
actor like people much — no difference — actor like people much
more than "true" response — to actor's liking — more than "false" response

---

5. I believe that there is too much violence on TV.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
actor like people much — no difference — actor like people much
more than "true" response — to actor's liking — more than "false" response

---

6. I often swear when I am annoyed.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
actor like people much — no difference — actor like people much
more than "true" response — to actor's liking — more than "false" response

---

7. I have never lied in my life.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made — response made — "true" response made
actor like people much — no difference — actor like people much
more than "true" response — to actor's liking — more than "false" response

---

8. I only work as hard as I have to.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made actor like people much more than "true" response	response made no difference to actor's liking	"true" response made actor like people much more than "false" response

9. I like to be the center of attention.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made actor like people much more than "true" response	response made no difference to actor's liking	"true" response made actor like people much more than "false" response

10. I am a smoker.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made actor like people much more than "true" response	response made no difference to actor's liking	"true" response made actor like people much more than "false" response

Subjective Influence Rating Scales for Covariation Observers: Second Block

ON THIS PAGE PLEASE RATE HOW YOU THINK EACH ITEM INFLUENCED THIS ACTOR'S LIKING RATINGS FOR THE SECOND SET OF 32 PERSONALITY INVENTORIES.

---

1. Most of my friends are of the opposite sex.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actor like people much more than "true" response — response made no difference to actor's liking — "true" response made actor like people much more than "false" response

---

2. I am often bored.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actor like people much more than "true" response — response made no difference to actor's liking — "true" response made actor like people much more than "false" response

---

3. I believe that a university education is a valuable asset.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actor like people much more than "true" response — response made no difference to actor's liking — "true" response made actor like people much more than "false" response

---

4. I am more attractive than the average person my age.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actor like people much more than "true" response — response made no difference to actor's liking — "true" response made actor like people much more than "false" response

---

5. I believe that there is too much violence on TV.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actor like people much more than "true" response — response made no difference to actor's liking — "true" response made actor like people much more than "false" response

---

6. I often swear when I am annoyed.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actor like people much more than "true" response — response made no difference to actor's liking — "true" response made actor like people much more than "false" response

---

7. I have never lied in my life.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actor like people much more than "true" response — response made no difference to actor's liking — "true" response made actor like people much more than "false" response

---

8. I only work as hard as I have to.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made	response made	"true" response made
actor like people much	no difference	actor like people much
more than "true" response	to actor's liking	more than "false" response

9. I like to be the center of attention.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made	response made	"true" response made
actor like people much	no difference	actor like people much
more than "true" response	to actor's liking	more than "false" response

10. I am a smoker.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made	response made	"true" response made
actor like people much	no difference	actor like people much
more than "true" response	to actor's liking	more than "false" response

Appendix L

Instructions to No-covariation Observers

It is very important that you read these instructions carefully before going on.

Participants in this study have been randomly divided into two groups. We will call those in Group 1 "ACTORS" and those in Group 2 "OBSERVERS". You are a member of the OBSERVER group. We are going to describe to you the ACTORS' task, and then, instead of having you do the task yourself, we will ask you to guess how the ACTORS performed the task.

Last term we administered a short form of Rekler's 19-FP Personality Inventory to a large number of male students enrolled in Psychology 260 (We will be studying females in a later project.) ACTORS were required to look over each student's responses to 10 items on the personality inventory, and, on the basis of these responses, to decide how much they would like the student. So, ACTORS looked at the way several students had responded to 10 items from a personality inventory and used those responses to estimate how much they would like each of these students.

We are particularly interested in how you think the various items of information in the personality inventories affected the ACTORS' liking judgments. We would like you to guess how much, on the average, the way people responded to each item influenced the liking ratings of ACTORS who are the same sex as you are. The people who filled out the personality inventories had the option of responding "true" or "false" to each item. ACTORS may have liked people more who responded "true" to a particular item, ACTORS may have liked people more who responded "false" to that item, or ACTORS may have liked people who responded "true" and people who responded "false" equally.

On the following pages, we ask you to guess what effect people's responses to each item had on ACTORS' liking for them. For each item, we would like you to rate how much, on the average, you think "true" versus "false" responses influenced ACTORS' liking. Below each item is the following scale:

-6 -5 -4 -3 -2 -1	0	+1 +2 +3 +4 +5 +6
"false" response made actors like people much more than "true" response	response made no difference to actors' liking	"true" response made actors like people much more than "false" response

If you think that "true" responses made ACTORS like people more than "false" responses, you should circle a positive number (on the right side of the scale). The specific positive number you choose will depend on how much more you think ACTORS liked "true" responders than "false" responders. If you think that "true" responses made ACTORS like people less than "false" responses, you should circle a negative number (on the left side of the scale). The specific negative number you choose should depend on how much less you think ACTORS liked "true" responders than "false" responders. If you think "true" and "false" responses made no difference to ACTORS' liking for people, you should circle the 0 in the middle of the scale.

Please remember that you are to guess how much each item influence the liking ratings of ACTORS who are the same sex as you are. Note also that we are interested in how you think ACTORS were influenced by each item, not in how you would be influenced by the item. We know these are complicated instructions, so if anything at all is unclear to you, please ask the researcher to explain it. If these instructions are clear, you may go ahead with your task.

Appendix M

Subjective Influence Rating Scales for No-covariation Observers

ON THIS PAGE PLEASE RATE HOW YOU THINK EACH ITEM INFLUENCED ACTORS' LIKING RATINGS.

---

1. Most of my friends are of the opposite sex.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actors like people much more than "true" response — response made no difference to actors' liking — "true" response made actors like people much more than "false" response

---

2. I am often bored.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actors like people much more than "true" response — response made no difference to actors' liking — "true" response made actors like people much more than "false" response

---

3. I believe that a university education is a valuable asset.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actors like people much more than "true" response — response made no difference to actors' liking — "true" response made actors like people much more than "false" response

---

4. I am more attractive than the average person my age.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actors like people much more than "true" response — response made no difference to actors' liking — "true" response made actors like people much more than "false" response

---

5. I believe that there is too much violence on TV.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actors like people much more than "true" response — response made no difference to actors' liking — "true" response made actors like people much more than "false" response

---

6. I often swear when I am annoyed.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actors like people much more than "true" response — response made no difference to actors' liking — "true" response made actors like people much more than "false" response

---

7. I have never lied in my life.

-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6

"false" response made actors like people much more than "true" response — response made no difference to actors' liking — "true" response made actors like people much more than "false" response

---

8. I only work as hard as I have to.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made	response made	"true" response made
actors like people much	no difference	actors like people much
more than "true" response	to actors' liking	more than "false" response

9. I like to be the center of attention.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made	response made	"true" response made
actors like people much	no difference	actors like people much
more than "true" response	to actors' liking	more than "false" response

10. I am a smoker.

-6 -5 -4 -3 -2	-1 0 +1 +2	+3 +4 +5 +6
"false" response made	response made	"true" response made
actors like people much	no difference	actors like people much
more than "true" response	to actors' liking	more than "false" response